REINWARDTIA
Vol 12, Part 5, pp: 339 – 342

NEPENTHES NAGA, A NEW SPECIES OF NEPENTHACEAE FROM BUKIT BARISAN OF SUMATRA

Received July 10, 2007; accepted March 27, 2008.

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ABSTRACT

AKHRIADI, P., HERNAWATI, PRIMALDHI, A. & HAMBALI, M. 2009. *Nepenthes naga*, a new species of *Nepenthaceae* from Bukit Barisan of Sumatra. *Reinwardtia* 12(5): 339 – 342. — A new species of *Nepenthes* from North Sumatra is described as *Nepenthes naga* Akhriadi, Hernawati, Primaldhi & Hambali. The key characters for this species are a triangular dichotomous appendage resembling a snake's tongue inserted sub-apically on the undersurface of the lid, and the undulate lid margin.

Keywords: *Nepenthes*, *Nepenthaceae*, Sumatra, snake-tongue

ABSTRAK

AKHRIADI, P., HERNAWATI, PRIMALDHI, A. & HAMBALI, M. 2009. *Nepenthes naga*, sebuah jenis baru *Nepenthaceae* dari Bukit Barisan Sumatera. *Reinwardtia* 12(5): 339 – 342. — Sebuah jenis baru *Nepenthes* dari Sumatra Utara dipertelakan sebagai *Nepenthes naga* Akhriadi, Hernawati, Primaldhi & Hambali. Karakter kunci dari jenis ini adalah adanya apendiks bercabang dua yang menyegi-tiga menyerupai lidah ular yang muncul sebelum ujung dari permukaan bawah tutup kantong dan pinggir tutup kantong yang mengombak.

Kata kunci: *Nepenthes*, *Nepenthaceae*, Sumatera, lidah ular

INTRODUCTION

The species of *Nepenthes* L. (*Nepenthaceae*) are popular plants with the unique character of pitchers that inserted from leaf apex through the tendril and are of interest to plant researchers, nurseries and hobbyists. In the last seven years about 10 new species of *Nepenthes* have been published especially from Sumatra and Kalimantan (Indonesian Borneo). Both of islands assumed as the mainland with the large number of *Nepenthes* species where some new species had been described continuously. During 2004 and 2007, five new species have been described from Sumatra and Borneo. From Borneo: *N. chaniana* Clarke, Lee & McPherson (2006), and from Sumatra *N. flava* Wistuba, Nerz & Fleischm. (2007), *N. jamban* Lee, Hernawati & Akhriadi (2006), *N. lingulata* Lee, Hernawati & Akhriadi (2006), and *N. rigidifolia* Akhriadi, Hernawati & Tamin (2004).

Several *Nepenthes* experts have claimed that Sumatra is a hotspot of *Nepenthes* evolution (*e.g.* Wistuba *et al.*, 2007). With 36 *Nepenthes* species described since Linnaeus in Sumatra, the island has become the island with the largest number of species, followed by Borneo with 34 species. Clarke and Lee (*pers. comm.)* also suggest that there are several new species yet to be found and described in Sumatra.

One new species collected during an expedition by Indonesian *Nepenthes* hobbyists between March and July 2007, is here described: *Nepenthes naga* Akhriadi, Hernawati, Primaldhi &

Hambali. This species is most similar to *N. ovata* Nerz & Wistuba and *N. spathulata* Danser, but has a long appendage of several centimetres attached sub-apically to the undersurface of the lid, like a snake or dragon (`naga') tongue.

Nepenthes naga Akhriadi, Hernawati, Primaldhi & Hambali, *sp. nov.* - Figure 1.

Nepenthidi spathulatae similis, ascidia operculo facie inferiore appendice subapicali triangulari serpentis linguae similis, operculi margine undulato differt — Typus: Indonesia, North Sumatra, the hill around Panyabungan city, 1500 – 2000 m, 27 July 2007, *Alfindra Primaldhi et Muhammad Hambali, DivNep 052* (ANDA – HOLO; BO - ISO).

Epiphytic climber to *ca.* 5 m tall. *Stem of rosette and lower parts* cylindrical, *ca.* 1 cm in diameter, internodes *ca.* 0.7 cm length. *Stem of upper parts* climbing 100–200 cm, orbicular – quadrangular, *ca.* 0.8 cm in diameter, internodes 6.8–14.8 cm length, with a spine-like process above each nodes. *Leaves of rosette and lower parts* leathery coriaceous, sessile, spathulate – oblong, 21–27 by 6.0–7.8 cm, base decurrent for 2/3 of its diameter; midrib sunken above, triangular beneath; longitudinal veins 3 pairs at each side of the midrib, indistinct above and distinct beneath; pinnate veins indistinct at both surfaces, margin entire, apex slightly emarginated – rotundate; tendril inserted *ca.* 0.3 cm below the apex, 18.5–41.0 cm length. *Leaves of upper parts* similar to those of the rosette and the lower parts; but spathulate, 10.2–16.0 by 4.5–6.0 cm, decurrent along the stem for 1/2–3/4 of its diameter at the base, apex rotundate; tendril insertion apical, looped, 24.0–28.0 cm length. *Rosette and lower pitchers* ovoid to narrowly ovoid at the base to glandular zone extended 1/2–3/4 pitchers high then narrowly cylindrical towards the mouth, 24.0–33.5 by 5.7–6.8 cm; two wings extended down from the edge of the mouth, 10.5–17.3 by 0.5 cm width, with fringed hairs 1.4–1.9 cm in length; mouth ovate, 6.7–8.4 by 2.4–3.7 cm, slightly necked, 45–60° slope; peristome expanded outwards 2.3–5.8 cm wide at each side, curved downward inside the pitcher 0.4–0.8 cm width, 0.5–0.8 cm width in front, with 6–9 lobes on each side, with 3 notches in front with 0.2–0.5 cm width; teeth distinct 0.05–0.1 cm length, 0.3–0.4 cm length at the neck; lid ovate, 7.3–8.5 by 5.0–7.2 cm, base cordate, midrib sunken–grooved above, raised beneath, longitudinal veins 4 or 5 pairs that insertion from the base, distinct above, indistinct beneath; margin undulate, apex rotundate; 2 appendages along the midrib of the lid beneath, first appendage sharp like teeth 0.6–1.0 cm distance from the midrib base with 0.4–0.7 cm height; second appendage triangular dichotomous appendages like snake-tongue 1.2–2.3 cm distance inserted apically reach 1.0–1.4 by 0.3–0.5 cm, basal of dichotomous appendages 1.4–2.3 cm width; concentrated nectar gland on lid beneath surface along the midrib 0.01–0.05 cm in diameter, larger nectar gland concentrated at dichotomous appendages 0.05–0.1 cm in diameter; spur 0.3–0.6 cm distance below the lid base, 2.1–2.8 cm length, unbranched. *Upper pitchers* slightly infundibular at the base to glandular zone 1/3–3/4 pitcher high then cylindrical towards the mouth, 20.8–24.3 by 4.0–4.5 cm; wings reduced to rib; mouth ovate, 3.8–5.4 by 3.0–3.5 cm, necked, 45° slope; peristome expanded outwards 1.0–0.5 cm width on both sides, 0.2–0.3 cm width in front; 4–5 lobes each sides, 0–1 notched in front 0–0.2 cm length; teeth distinct 0.05 cm height, 0.1 –0.13 cm height at the neck; lid ovate, 5.5–6.1 cm length, 4.3–5.5 cm width, base cordate; midrib grooved above, raised beneath; longitudinal veins 3–4 pairs, distinct above, indistinct beneath; margin undulate, apex rotundate; 2 appendage along the midrib of the lid beneath, first appendage sharp like teeth 0.5–0.6 cm distance from the midrib base with 0.1–0.3 cm height; second appendage triangular dichotomous like snake-tongue 1.1–1.3 cm distance inserted apically, each 1.3–1.5 cm length and 0.3–0.5 cm width each blade, basal of dichotomous appendages 1.4–1.5 cm width; concentrated nectar gland on lid beneath surface along the midrib 0.01–0.02 cm in diameter, bigger nectar gland concentrated at dichotomous appendages surface 0.05–0.1 cm in diameter; spur flattened, 1.0–1.4 cm length, 0.2 cm width, 0.4–0.6 cm distance below the lid base, 2 branched near the tip. *Female flowers* axillary in front of the leaf base, a raceme or a panicle, 14.5 cm length, peduncle 7 cm length, rachis 7.5 cm length, pedicel 0.3–0.5 cm length, pedicel branches 0.5–0.9 cm length; bracteole linear, 0.7–1.2 cm length; tepal linear 0.2–0.5 cm length. Fruit 0.3–1.0 cm length, 0.15–0.4 cm width. *Male flowers* not found. *Indumentum of the rosette and lower parts* glabrous. *Indumentum of the upper parts* similar to those of the rosette and lower parts including the female flowers. *Colour of herbarium specimen* stem blackish brown, leaves above greenish brown and brown beneath, pitchers dark brown in rosette and lower pitcher and bright brown in upper pitcher, lid greenish brown – brown above and dark brown beneath. *Colour of living specimen* leaves dark green above and pale green beneath, midrib pale green on both sides. Rosette and lower pitchers green – brownish green outside, glandular zone pale green inside, upper zone pale green with dark red blotches inside, mouth dark red – blackish brown; lid green with dark red blotches around the midrib then dark red spots to the margin above, green with dark blotches beneath, teeth-like appendage green on the base of lid beneath, dichotomous appendage dark red on the apical below of lid beneath. Upper pitchers similar to those of the rosette and the lower pitchers, but green at glandular zone outside and with pale dark red toward the mouth, mouth green with dark red lines, lid green – green with dark red spots above, pale green with dark red blotches beneath, dichotomous appendage green with dark red blotches. Fruit brown.

Distribution. Sumatra, North Sumatra.

Vernacular Name. Tahul – Tahul.

Derivation. The specific epithet *naga* refers to the dichotomous appendage like snake's tongue inserted sub-apically on the under surface of the lid. Local folklore also includes stories claiming that the habitat of this species was occupied by dragons ('naga'), long ago.

Ecology And Conservation. The species is epiphytic in montane mossy forest at 1,500 to 2,000 m asl. The vegetation includes *Fagaceae*, *Gleicheiniaceae* and some of montane flowering shrubs. The population of *N. naga* is not larger, and will further decrease if the habitat is disturbed or invaded by plantation species as *Hevea brasiliensis* from rubber plantations at the foot of the hill. The other cause of population decline is over-collection by plant hunters, who scrape off individuals from rocks and trees and collect its fruit so intensively that no seeds naturally survive. The habitat is not protected by law.

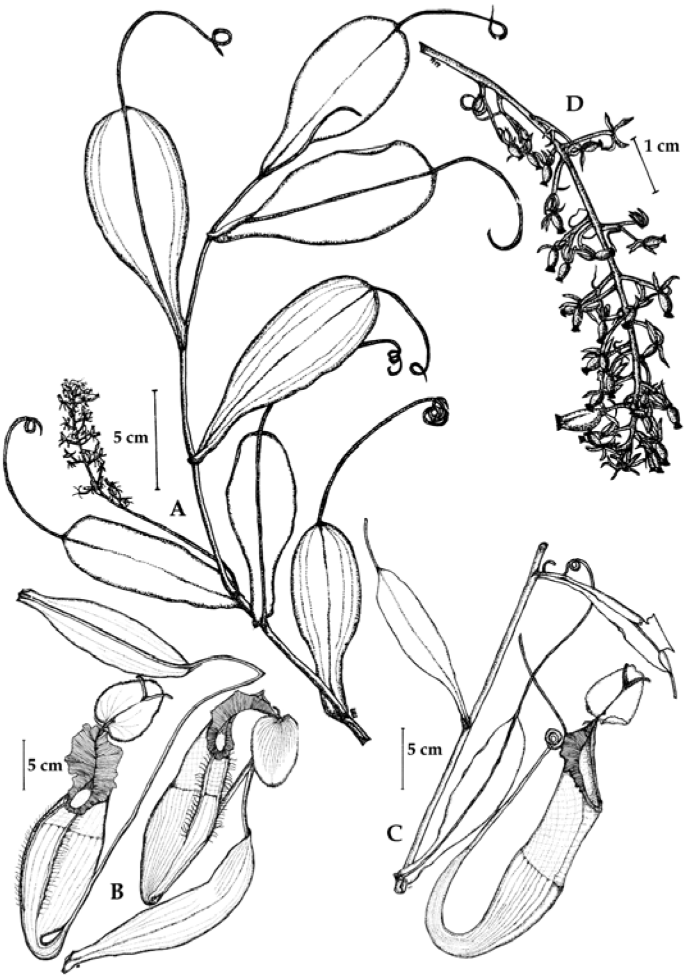

Figure 1. *Nepenthes naga* Akhriadi, Hernawati, Primaldhi & Hambali (A) Habit (B) Lower pitchers (C) Upper pitchers (D) Female flower. From *Primaldhi & Hambali, DivNep 052 (*ANDA) (Drawn by Hernawati).

Table 1. Characters comparison between *N. naga* with *N. ovata* and *N. spathulata*

Characters	*N. naga*	*N. ovata*	*N. spathulata*
Leaves			
Texture	Leathery coriaceous	Thick coriaceous	Coriaceous
Shape	Spathulate	Spathulate	Spathulate
Tendril insertion	Sub-apical	Apical	Sub-apical
Rosette and Lower Pitchers			
Shape	Ovoid then cylindrical toward mouth	Broad ovoid	Ovoid then cylindrical toward mouth
Mouth lobes	6 – 9 lobes each side	5 lobes each sides	4 lobes each sides
Lid shape	Ovate	Orbicular-ovate	Ovate or elliptic
Lid margin	Undulate	Entire	Entire
Sub-apical lid appendage	Triangular and dichotomous like snake-tongue	None	None
Upper pitchers			
Shape	Infundibulate then ovoid then cylindrical toward mouth	Infundibulate	Infundibulate then ovoid then cylindrical toward mouth
Mouth lobes	4 – 5 lobes each sides	5 lobes each sides	3 lobes each sides
Lid shape	Ovate	Orbicular	Orbicular
Lid margin	Undulate	Entire	Entire
Sub-apical lid appendage	Triangular and dichotomous like snake-tongue	None	None
Flowers			
Female flowers	1-2 flowered	1-flowered	1-flowered

Notes. The characters comparison between *N. naga* with others neighbouring species in rather similar of characters presented in Table 1 where the key characters had been choosing.

Specimens Examined. ***Nepenthes naga***: North Sumatra, the hills around Panyabungan city, 1500–2000 m, 27 July 2007, *A. Primaldhi & M. Hambali DivNep*052 (ANDA!– Holotype; BO! – Isotype).
***Nepenthes ovata*:** North Sumatra, Toba Samosir Dist., G. Pangulubao, 1500-2100 m, Dec. 16, 2003, *Nepenthes Team (Hernawati, P. Akhriadi & I. Petra) NP373, NP377* (ANDA!); Sipal-pal, Sibual-buali, Sipirok, 1500 m, 18 May 1993, *J.J. Afriastini 2340* (BO!).
***Nepenthes spathulata*:** Jambi, Kab. Kerinci, Gn. Tujuh area, 1300–2300 m, 30 June 2005, *Nepenthes Team (Hernawati & P. Akhriadi) NP399,* (ANDA!); South Sumatra, G. Dempo, 1400–1900 m, 07 September 2004, *Adrian, Arifin, Mustofa DivNep 05*, (ANDA!); Lampung, Mt. Tanggamus, 1800-1900 m, 3 May 1968, *M. Jacobs 8261,* (BO!, SING!); Lampung, Mt. Tanggamus, 2000 m, January 1935, *M.A. Lieftinck 11,* (BO! – Isolecto).

ACKNOWLEDGEMENT

We would like to express our gratitude to Mr. Rusjdi Tamin the curator of Herbarium ANDA who always support our study in ANDA. We are grateful to Adrian Yusuf Wartono of Divisi Nepenthes and M. Apriza Suska of KTKI who suggested us to conduct this expedition. First and second authors wish to thank Dr. Elizabeth A. Widjaja of BO, Serena Lee of SING, Dr. Campbell O. Webb for review the first manuscript, Dr. J.F. Veldkamp for the Latin diagnose and review the manuscript.

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